In the claims

Amend the claims as follows:

(Amended)

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1. ~~Method~~ A method for forming an image by means of an image sensor with an active area ~~(1)~~ containing a plurality of pixels ~~(10, 10', ...)~~, comprising the steps of:

~~a)~~(a) in ~~n~~ two interrogation runs performed on a first subset ~~(11)~~ of pixels, ~~where n is an integer and $n \geq 2$,~~ resetting ~~(21, 25)~~ the first subset of pixels ~~(11)~~, exposing ~~(22, 26)~~ the first subset ~~(11)~~ of pixels and reading out ~~(23, 27)~~ the output value(s) ~~($P^{(255)}_{long}$, $P^{(255)}_{short}$)~~ of the first subset ~~(11)~~ of pixels, wherein in said two interrogation runs, a longer exposure and a shorter exposure are performed;

(b) combining said output values ~~($P^{(255)}_{long}$, $P^{(255)}_{short}$)~~ into a first combined output value ~~($P^{(255)}_{out}$)~~ by means of a merging function which is truly monotonic, continuous and continuously differentiable in all said output values, wherein said merging function has the following properties:

(i) preference is given to the output value obtained from the longer exposure when said output values or a combination of said output values lie beneath a given lower limit;

(ii) preference is given to the output value obtained from the shorter exposure when said output values or a combination of said output values lie above a given upper limit;

~~b)~~(iii) said merging function increases truly monotonically in said output values when said output values lie between said lower limit and said upper limit; and

~~c)~~(c) repeating steps (a) and (b) for at least one second subset ~~(11')~~ of pixels.

(Amended)

2. ~~Method~~ The method according to claim 1, wherein said subsets are rows ~~(11, 11', ...)~~, columns ~~(12, 12', ...)~~ or single pixels ~~(10, 10', ...)~~ of the image sensor.

(Amended)

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3. The method ~~Method~~ according to claim 1, wherein prior to step (a), the active area ~~(1)~~ of the image sensor is partitioned into subsets ~~(11, 11', ...)~~ with equal numbers ~~(256)~~ of pixels ~~(10, 10', ...)~~.

(Amended)

4. The method ~~Method~~ according to claim 1, wherein in step (a), at least one of said output value(s) ~~($P^{(255)}_{long}$)~~ is/are stored ~~(24, 24', ...)~~.

(Amended)

5. The method ~~Method~~ according to claim 1, wherein steps (a) and (b) are repeated until each pixel ~~(10, 10', ...)~~ has been read out at least once.

(Amended)

6. The method ~~Method~~ according to claim 1, wherein ~~the processing of~~ performing steps (a) and/or (b) on one subset ~~(11)~~ of pixels temporally overlaps with ~~the processing of~~ performing steps (a) and/or (b) on the following subset ~~(11')~~ of pixels.

7-10 (canceled)

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11. (Amended) ~~Method according to claim 1,~~ A method for forming an image by means of an image sensor with an active area containing a plurality of pixels, comprising:

(a) in *n* interrogation runs performed on a first subset of pixels, where *n* is an integer and $n \geq 2$, resetting the first subset of pixels, exposing the first subset of pixels and reading out the output value(s) of the first subset of pixels,

B1 (b) combining said output vaues into a first combined output value;

(c) repeating steps (a) and (b) for at least one second subset of pixels;

wherein in step (b), said output values ~~($P_1, \ldots, P_n$)~~ are combined into a combined output value ~~(P_{out})~~ by means of a merging function ~~($f(x_1, \ldots, x_n)$)~~ which is truly monotonic, continuous and continuously differentiable in all said output values ~~($f(x_1, \ldots, x_n)$)~~, wherein n = 2 for subsets ~~(11, 11', ...)~~ of pixels, wherein in step (a), a longer exposure ~~(22, 22', ...)~~ and a shorter exposure ~~(26, 26', ...)~~ are performed wherein said merging function ~~($f(x_1, x_2)$)~~ has the following properties:

(i) preference is given to the output value ~~(x_1)~~ obtained from the longer exposure ~~(22, 22', ...)~~ when said output values ~~(x_1, x_2)~~ or a combination of said output values ~~($(x_1 + x_2)/2$)~~ lie beneath a given lower limit ~~(x_{low})~~;

(ii) preference is given to the output value ~~(x_2)~~ obtained from the shorter exposure ~~(26, 26', ...)~~ when said output values ~~(x_1, x_2)~~ or a combination of said output values ~~($(x_1 + x_2)/2$)~~ lie above a given upper limit ~~(x_{up})~~;

(iii) said merging function ~~($f(x_1, x_2)$)~~ increases truly monotonically in said output values ~~(x_1, x_2)~~ when said output values ~~(x_1, x_2)~~ lie between said lower limit ~~(x_{low})~~ and said upper limit ~~(x_{up})~~.

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12. (Amended) Method according to claim 11, wherein said merging function ~~(f(x1, x2))~~ is defined by

$$f(x_1, x_2) = \sqrt{cx_1^2 + (1-c)x_2^2} \quad \text{with} \quad c = (x_1 - x_{up})/(x_{low} - x_{up})$$

for $x_{low} < x_1 < x_{up}$.

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13. (Amended) The method ~~Method~~ according to ~~one of the claims 1-12~~claim 1, wherein said image sensor is an active pixel sensor ~~(APS)~~.

14 (Amended) The method ~~Method~~ according to ~~one of the claims 1-13~~claim 1, wherein said output values ~~(P_{long}, P_{short})~~ are combined using a general-purpose digital computation unit, a dedicated digital or analog computation unit or a lookup table.

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15. (Amended) Image sensor for performing the method according to claim 1, comprising
an active area ~~(1)~~ containing a plurality of pixels ~~(10, 10', ...)~~, whereby at least two subsets ~~(11, 11', ...)~~ of pixels allow an individual interrogation;

means ~~(2, 3)~~ for individually interrogating subsets ~~(11, 11', ...)~~ of pixels;

means for combining output values ~~($P_{long}^{(255)}$, $P_{short}^{(255)}$)~~ of said subsets ~~(11, 11', ...)~~ into combined output values ~~($P_{out}^{(255)}$)~~; and

means ~~(6)~~ for electrically outputting said combined output values ~~($P_{out}^{(255)}$)~~.

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16. (original) Image sensor according to claim 15, said image sensor being an active pixel sensor (APS).

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17. (new)

The method ~~Method~~ according to claim ~~1~~1, wherein said merging function ~~($f(x_1, x_2)$)~~ is defined by

$$f(x_1, x_2) = \sqrt{c x_1^2 + (1-c) x_2^2} \quad \text{with} \quad c = (x_1 - x_{up})/(x_{low} - x_{up})$$

for $x_{low} < x_1 < x_{up}$.

18. (New) A method for forming an image by means of an image sensor with an active area containing a plurality of pixels, comprising the steps of:

(a) in two interrogation runs performed on a first subset of pixels, resetting the first subset of pixels, exposing the first subset of pixels and reading out the output value(s) of the first subset of pixels, wherein in said two interrogation runs, a longer exposure and a shorter exposure are performed;

B' (b) combining said output values into a first combined output value; and

(c) repeating steps (a) and (b) for at least one second subset of pixels;

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wherein during said longer exposure of ~~one~~ subset, steps (b) ~~are~~ performed for all other subsets.

19. (New) The method according to claim 18, wherein said subsets are rows, columns or single pixels of the image sensor.

20. (New) The method according to claim 18, wherein prior to step (a), the active area of the image sensor is partitioned into subsets with equal numbers of pixels.

21. (New) The method according to claim 18, wherein in step (a), at least one of said output value(s) is/are stored.

22. (New) The method according to claim 18, wherein steps (a) and (b) are repeated until each pixel has been read out at least once.

23. (New) The method according to claim 18, wherein said image sensor is an active pixel sensor (APS).

24. (New) The method according to claim 18, wherein said output values are combined using

a general-purpose digital computation unit, a dedicated digital or analog computation unit or a lookup table.

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